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Suggested title of session in which paper should be placed: Charge Transfer, Ionization

Charge Exchange and Ionization by Highly Stripped Pb^{q+} Ions In Gas Targets*, J.A. TANIS, K.H. BERKNER, R.V. PYLE, A.S. SCHLACHTER, P. SCHNEIDER, K. STALDER, and J.W. STEARNS, Lawrence Berkeley Laboratory, Berkeley, CA. 94720--Electron capture, loss, and ionization cross sections have been determined for 922 MeV Pb^{q+} (q = 50-59) ions incident on H_2. In addition, capture and loss cross sections for Pb^{54+} ions in He, N_2, Ne, Ar, and Xe target gases were determined. The H_2-target results extend experimental verification of our scaling rule[1] for electron loss (capture plus ionization) from a hydrogen target to ions with charge states as high as 59+. The single electron capture cross section in H_2 increases from 3-4.5 x 10^{-19} cm^2 with increasing incident charge state, while the single electron loss cross section decreases from 3.5-1.5 x 10^{-19} cm^2. The ionization cross sections in H_2 are large with values ~2-2.5 x 10^{-14} cm^2. The capture and loss cross sections for Pb^{54+} ions in other gases investigated show a uniform increase with increasing Z of the target, reaching values of ~ 8 x $10^{-17}$$cm^2$ for capture and ~ 3.5 x $10^{-18}$$cm^2$ for loss.

1. Olson *et al.*, Phys. Rev. Lett. 41, 163 (1978).

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( ) Prefer Poster Session

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( ) No Preference

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